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A COMPARISON OF NONWHITE CANCER MORTALITY AMONG MAJOR U.S. METROPOLITAN AREAS: 1969-1971

By John P. Enterline

A COMPARISON OF NONWHITE CANCER MORTALITY AMONG MAJOR U.S. METROPOLITAN AREAS: 1969-1971

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Objectives of the Study

General: To examine available data on cancer mortality among blacks (nonwhites) living in large U.S. metropolitan areas.

Specific: To compile recent age-adjusted cancer mortality rates for the ten U.S. Standard Metropolitan Statistical Areas (SMSA's) having the greatest numbers of blacks and for the total United States population.

Purpose of this Report

- To provide health program planners with an overview of both the cancer mortality and possible needs of nonwhites in the U.S.
- To provide epidemiologists with baseline information needed to identify specific questions as a basis for initiating appropriate etiological studies among major black populations.

ABSTRACT

This study examines 1969-1971 age-adjusted cancer mortality rates of nonwhites (blacks) living in ten large United States metropolitan areas. These ten areas have the largest numbers of black residents and comprise 34.5 percent of the total U.S. black population. Nine of the ten areas had nonwhite cancer mortality rates higher than U.S. nonwhite averages; two of these areas were found to have extremely high cancer rates for both male and female nonwhites —Washington, D.C. and Baltimore, MD. Cancer mortality rates for all areas were examined by sex, color, and organ system. Among the study areas, nonwhite males in Washington and Baltimore had the highest cancer rates for total cancers, and for all major organ system cancers (i.e., digestive, respiratory, and genital). Nonwhite females in these two areas were found to have the highest rates for total cancer mortality among the study area females. This study also identifies specific cancer sites for which unusually high mortality rates occur among nonwhites in the U.S., Washington, D.C., and Baltimore City.

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INTRODUCTION

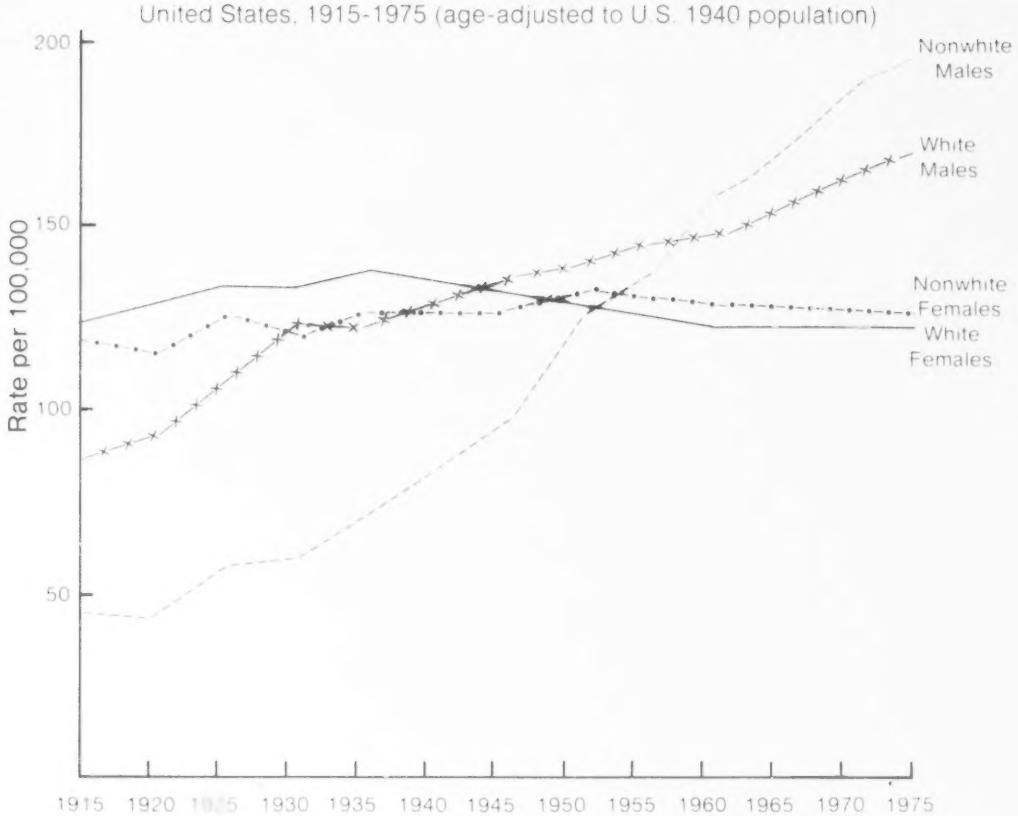
Until the early 1950's, reported U.S. cancer mortality rates for nonwhites (blacks) were lower than those for whites among both males and females. However, over the past six decades, cancer deaths among nonwhite males have risen even faster than those for white males; rates for nonwhite females have remained steady, while rates for white females have declined (See Figure 1). Similar trends have been found for cancer incidence.[1,2] From 1955 to the present, the highest U.S. cancer mortality rates have occurred among nonwhite males, followed by white males, nonwhite females, and white females.

Although the rise in cancer mortality rates for U.S. males from 1915 to 1975 may partially be a result of improved reporting for causes of death, many experts feel that it also represents a true increase in the number of cancer deaths. This increase in mortality among both white and nonwhite males may, in part, be due to a shift to occupations which entail greater exposures to carcinogenic agents. Also during this period, a large urban migration occurred, particularly among nonwhites, which brought about increased individual exposures to environmental factors now known to be associated with cancer.

Two recent National Cancer Institute reports presented the geographic distribution of nonwhite cancer mortality in the U.S.[3,4] These reports examined average age-adjusted cancer mortality rates by county and state for the time period from 1950 through 1969. It was found that the geographic distribution of both nonwhite and white mortality varied markedly in the U.S. Major clusters of cancer deaths appeared around large urban areas, particularly those industrial in nature; most of these clusters occurred in the northeastern United States. The nature of the geographic breakdowns used in the NCI reports makes it impossible to aggregate and compare rates among specific metropolitan areas. Data are given by county and age-adjusted rates cannot be combined by arithmetic means.

In the present report, recent cancer mortality data from the ten U.S. metropolitan areas having the greatest numbers of blacks are presented and compared. The focus of this study is on nonwhite (black) mortality, though white rates for study areas are also examined. Mortality rates used in this study are from the 1969-1971 time period in order to take advantage of the accuracy of population data available from the 1970 U.S. Census. There is little reason to believe that the cancer relationships found in this study have changed since that time period.

Figure 1
Time Trends in Cancer Mortality by Sex and Color:
United States, 1915-1975 (age-adjusted to U.S. 1940 population)



Source: 6, 7, 11

This report does not attempt to explain study findings in an etiological sense, but to present and describe the cancer mortality experience in the nonwhite populations of ten major U.S. metropolitan areas. Certain factors and relationships are pointed out which should be useful both in providing direction for future epidemiologic research, and in providing health program planners with an overview of cancer mortality among U.S. nonwhites. This report may also serve to alert those metropolitan areas found to have high cancer mortality rates.

STUDY COMPONENTS

Unpublished cancer mortality data from the National Center for Health Statistics (NCHS) were examined for the ten U.S. Standard Metropolitan Statistical Areas (SMSA's) with the greatest numbers of blacks. Average age-adjusted cancer mortality rates from the 1969-1971 period were examined by both sex and color, and contrasted with comparable U.S. rates.[11]

Mortality rates for blacks, as differentiated from nonwhites, are not available in all U.S. governmental publications. NCHS, the agency responsible for the collection of U.S. mortality data, combines information concerning blacks with all other groups considered to be nonwhite (American Indians, Chinese, Japanese, etc.) to form a nonwhite category.[5] Beginning with mortality data from 1979, NCHS will compute separate rates for blacks. In the ten study areas examined, blacks comprise 92.1 percent of the nonwhite population.[4] Seven of these areas have over 95 percent blacks in the nonwhite population. In all of the areas, except Los Angeles (74.2 percent blacks), nonwhite rates should reasonably reflect rates for the black population. The data contained in this report are for whites and nonwhites and will be presented as such.

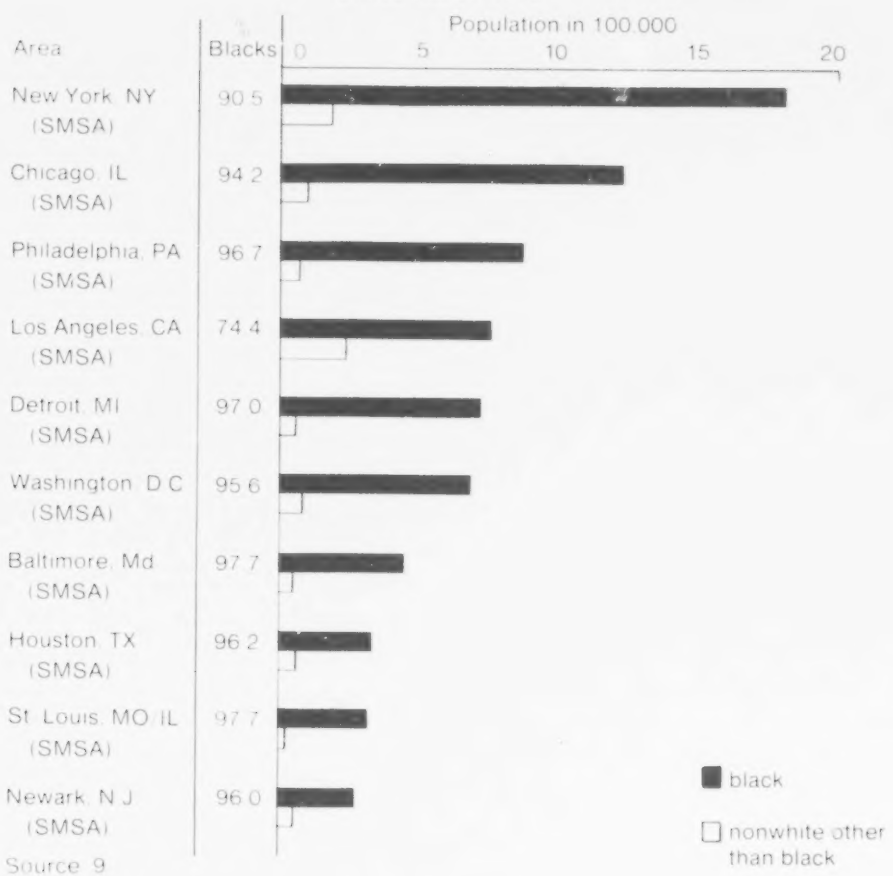
Cancer mortality data from NCHS are not compiled by specific anatomic site for any geographic unit smaller than a state. Cancer mortality rates and ratios for the study areas are presented by organ system (i.e., digestive system, respiratory system, genital system and breast) and generally were obtained or calculated from unpublished tabulations. A special effort was made to obtain comparable site specific mortality rates for the two study areas found to have the highest nonwhite rates (i.e., Washington, D.C., and Baltimore, MD), and for the total U.S. population. Washington, D.C. and total U.S. data were obtained from NCHS; the Baltimore City Health Department provided Baltimore rates. Appropriate site specific rates and ratios are presented at the end of each section dealing with an organ system. Supplemental tables with numerical data for all figures are found in the Appendix.

The degree to which an individual is at risk for cancer depends largely on his or her age, so a direct comparison between a younger and an older population would be misleading. This report uses age-adjusted rates, which mathematically remove the effects of age from the comparison. Cancer risks also vary considerably by sex, so separate rates for males and females are usually presented.

CHARACTERISTICS OF THE POPULATIONS STUDIED

This study examines cancer mortality in the ten U.S. SMSA's with the greatest numbers of blacks. These ten study areas include 34.5 percent of the total U.S. black population and 20.6 percent of the total U.S. population.[9] Seven of these areas are among the ten largest SMSA's in the U.S.; the other three are among the top 15; most of the central cities have an industrial economy.

Figure 2
Number and Percent of Blacks in the Nonwhite Population by Area
United States, 1970



Source: 9

Nationally, 88.7 percent of the nonwhite population is black. For the areas examined in this study, this figure increases to 92.1 percent. However, this percent varies depending on the study area: Los Angeles has only 74.4 percent blacks; New York has 90.5 percent blacks; Chicago has 94.2 percent blacks; the remaining seven areas have over 95 percent blacks in their nonwhite populations (See Figure 2). In all areas except Los Angeles, nonwhite rates should be reasonably representative of black rates. The unusual nonwhite rates occurring in Los Angeles will not be emphasized in this report due to the uniqueness of its population.

Among the study areas, the Washington, D.C. SMSA has the highest percentage of blacks in the total population of the metropolitan area (24.6), followed closely by Baltimore (See Table 1). Seven of the remaining eight areas have between 16.0 and 19.3 percent blacks in their populations. Los Angeles has 10.8 percent blacks. Blacks comprise 11.1 percent of the total U.S. population and 18.6 percent of the study population.

Among the central cities within the study SMSA's, Washington, D.C. and Baltimore have the highest percentage of blacks in the total population – 73.5 percent and 46.4 percent, respectively.[9] Numerous studies have shown that densely populated and industrial areas have high cancer mortality rates.[2,4,8] Many of the study areas meet these criteria.

FINDINGS

ALL TYPES OF CANCER

Age-adjusted cancer mortality rates for the ten populations studied, the total U.S population, and the combined populations of 229 United States SMSA s are presented in Figure 3. All of the areas, with the exception of Los Angeles,

Figure 3
Average Annual Mortality Rates for Total Cancer by Color and Geographic Area, United States 1969-1971 (age-adjusted to U.S. 1940 population)

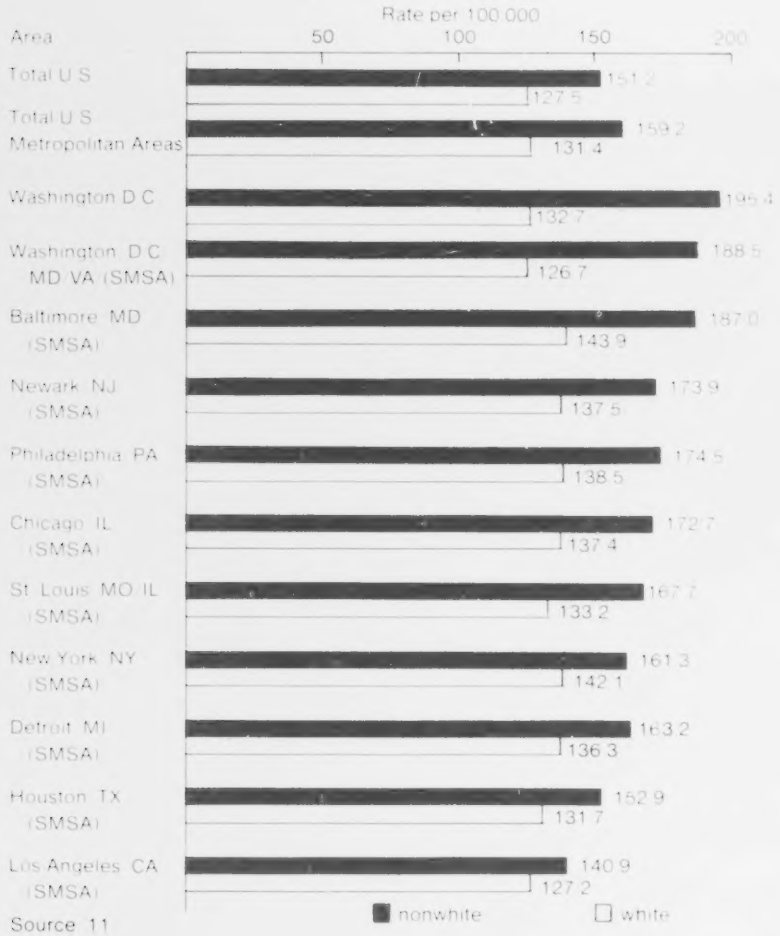


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Table 2

Nonwhite to White Relative Risk of Cancer Mortality by Sex and Area: U.S., 1969-1971

AREA	NONWHITE TO WHITE RELATIVE RISK*		
	BOTH SEXES	MALE	FEMALE
Total U.S. Metropolitan Areas**	1.21	1.25	1.13
Washington, DC (SMSA)	1.49	1.60	1.29
Baltimore, MD (SMSA)	1.30	1.30	1.24
Newark, NJ (SMSA)	1.26	1.39	1.11
Philadelphia, PA (SMSA)	1.26	1.31	1.18
Chicago, IL (SMSA)	1.26	1.30	1.18
St. Louis, MO/IL (SMSA)	1.25	1.27	1.19
New York, NY (SMSA)	1.14	1.25	1.02
Detroit, MI (SMSA)	1.20	1.21	1.15
Houston, TX (SMSA)	1.14	1.14	1.14
Los Angeles, CA (SMSA)	1.11	1.17	1.00

*The risk of nonwhites as compared to the risk of whites. Computed by forming a ratio of nonwhite to white age-adjusted rates.

**229 Standard Metropolitan Statistical Areas (SMSA's)

Source: Computed from 11

have rates higher than U.S. averages for both nonwhites and whites. Two areas that are geographically adjacent have the highest nonwhite rates – Washington, D.C. has the highest nonwhite rate and nearly the lowest white rate. Baltimore, MD. has the second highest nonwhite rate and the highest white rate. Two other areas which are in close proximity also have notably high nonwhite rates – Philadelphia, and Newark.

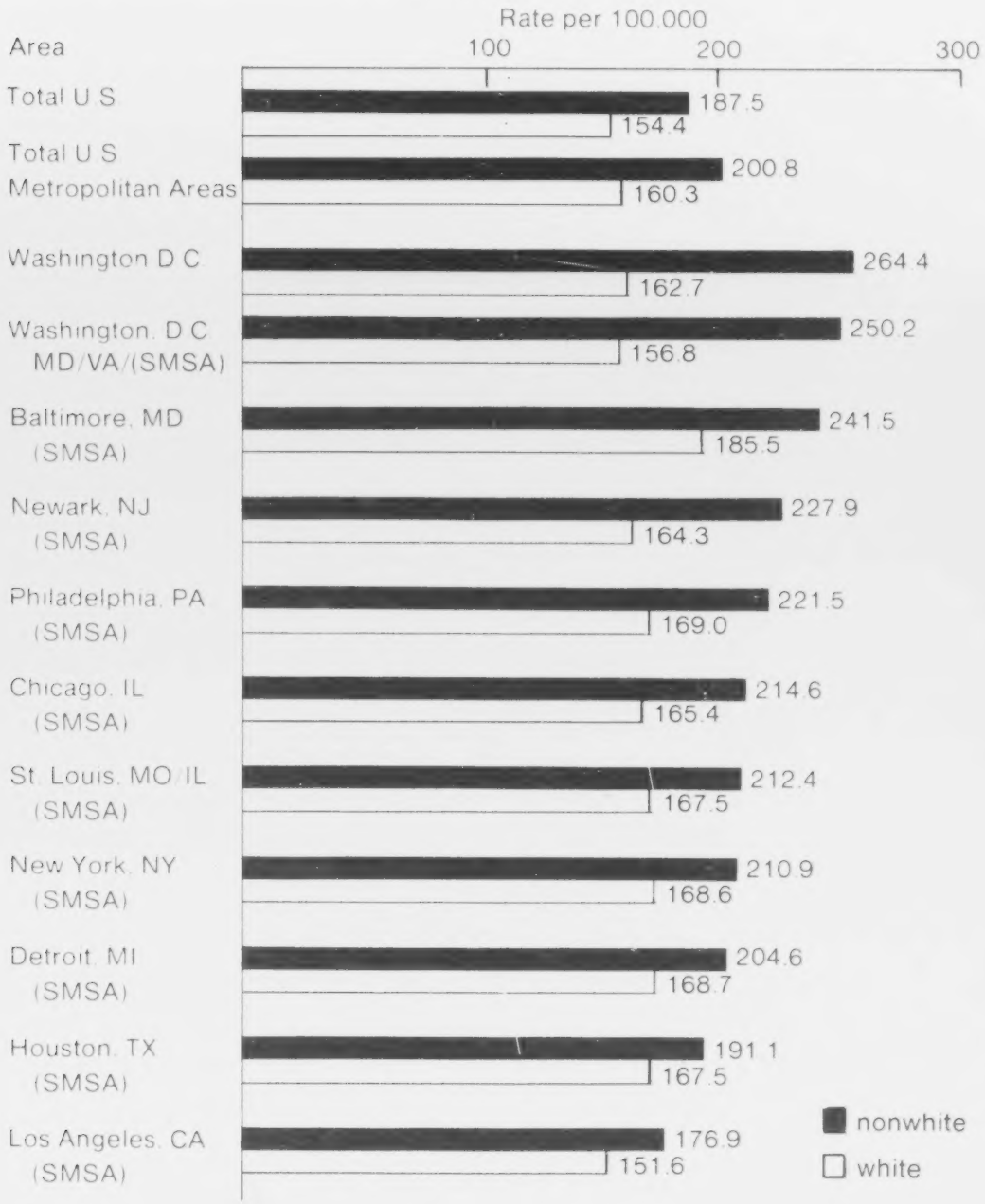
Among all of the study areas, and for the total U.S. population, nonwhites have higher age-adjusted rates than whites. The relative differences between white and nonwhite rates vary little among all study areas except Washington, D.C. Relative differences in mortality are expressed as relative risks (the ratio of nonwhite to white age-adjusted mortality rates) in Table 2. Washington's unusually high nonwhite relative mortality risk may reflect specific etiologic factors. It may also reflect differences between nonwhite and white residents in (1) stage of disease at diagnosis, (2) medical care, and (3) patient survival. Baltimore has the second highest nonwhite relative risk.

Nonwhite Males

Nonwhite males have the highest cancer mortality rates of the four sex/color groups. This is true for the total U.S. population and for all study areas. Among the study areas, Washington, D.C. has the highest rate; Baltimore has the second highest (See Figure 4). All other study areas, with the exception of Los Angeles, have nonwhite male rates above U.S. averages but noticeably lower

Figure 4

Average Annual Mortality Rates for Total Male Cancer by Color and Geographic Area: United States 1969-1971 (age-adjusted to U.S. 1940 population)



Source: 11

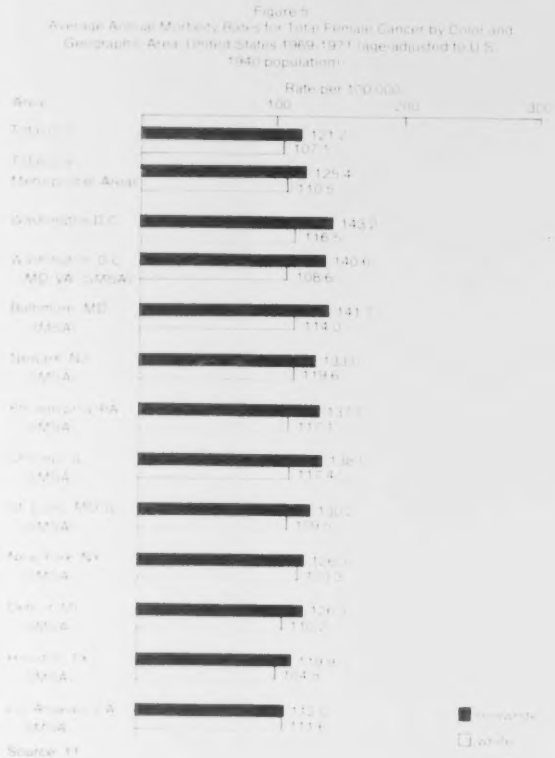
than Washington and Baltimore rates. Baltimore has the highest white male rate, whereas, Washington has the second lowest.

Washington, D.C. nonwhite males have a considerably higher nonwhite-to-white relative risk than males in the other study areas (See Table 2). Identifying factors contributing to Washington's high nonwhite male risk would be of etiologic interest. Newark, N.J. has the second highest relative risk.

Nonwhite Females

For the total U.S. population, and among all of the areas studied, cancer mortality rates for nonwhite females are higher than those for white females. Baltimore has the highest rates. Washington, D.C. rates are slightly lower (See Figure 5). The variation in mortality rates between areas for nonwhite females is considerably smaller than that for nonwhite males. Both Philadelphia and Chicago have notably high rates. In all of the study areas, except Houston and Los Angeles, the rates are above U.S. averages.

Washington, D.C. females have the highest nonwhite to white relative risk among the study areas (See Table 2). Similar causal factors may be associated with these high relative risks for both males and females in Washington. Baltimore also has a noticeably high nonwhite-to-white relative risk for its female population.



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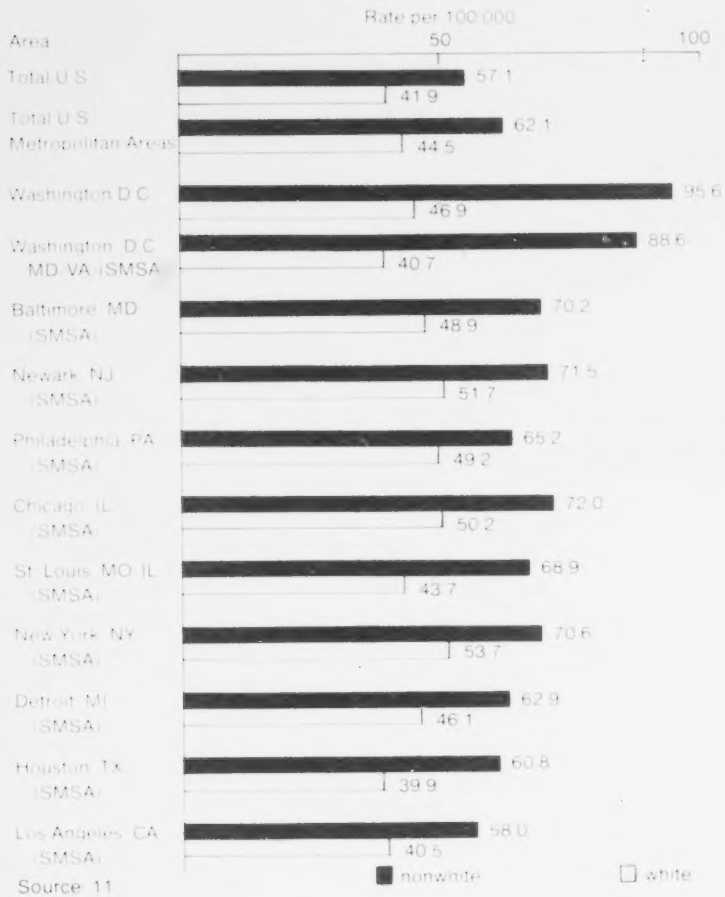
DIGESTIVE SYSTEM CANCERS

Cancers of the digestive system account for more cancer deaths than any other organ system in the body—28.8 percent of all cancer deaths.[11] This percent varies little between color and sex groups. Digestive system cancer mortality rates for nonwhites (particularly males) are higher than white rates in all of the study areas and for the total U.S. population. Cancers of the colon and rectum, taken together, account for 13.8 percent of all U.S. cancer deaths.

Figure 6
Average Annual Mortality Rates for Male Digestive System Cancer by Color and Geographic Area, United States 1969-1971 (age-adjusted to U.S. 1940 population)



Source: 11

Organs in the digestive systems include the esophagus, stomach, colon, rectum, gallbladder, liver and pancreas. For all of these sites, nonwhites (blacks) have poorer survival rates than whites.[1] In general, cancer among nonwhites is diagnosed at more advanced stages than among whites. This, along with certain socioeconomic factors, contributes to lower survival rates.

Nonwhite Males

Nonwhite males in all of the areas under study have digestive system cancer death rates above average U.S. rates (See Figure 6). The rates for Washington, D.C. are considerably higher than those for other areas. The differences between rates is relatively small among the other study areas. Conversely, Washington, D.C. white males have nearly the lowest rates for digestive system cancer among the study areas. This leads to Washington's extremely high nonwhite-to-white relative risk (See Appendix—Table 2A). The nonwhite relative risks for other study areas show much less variation from the figures for the total U.S. population.

Nonwhite Females

In eight of the ten study areas the digestive system cancer rates are above average U.S. nonwhite female rates; rates for the other two are slightly lower than the U.S. Figures (See Figure 7). Washington, D.C. nonwhite females have the highest rates; Chicago's nonwhite females rates are slightly lower. Rates for other study areas vary little and tend to cluster around national figures.

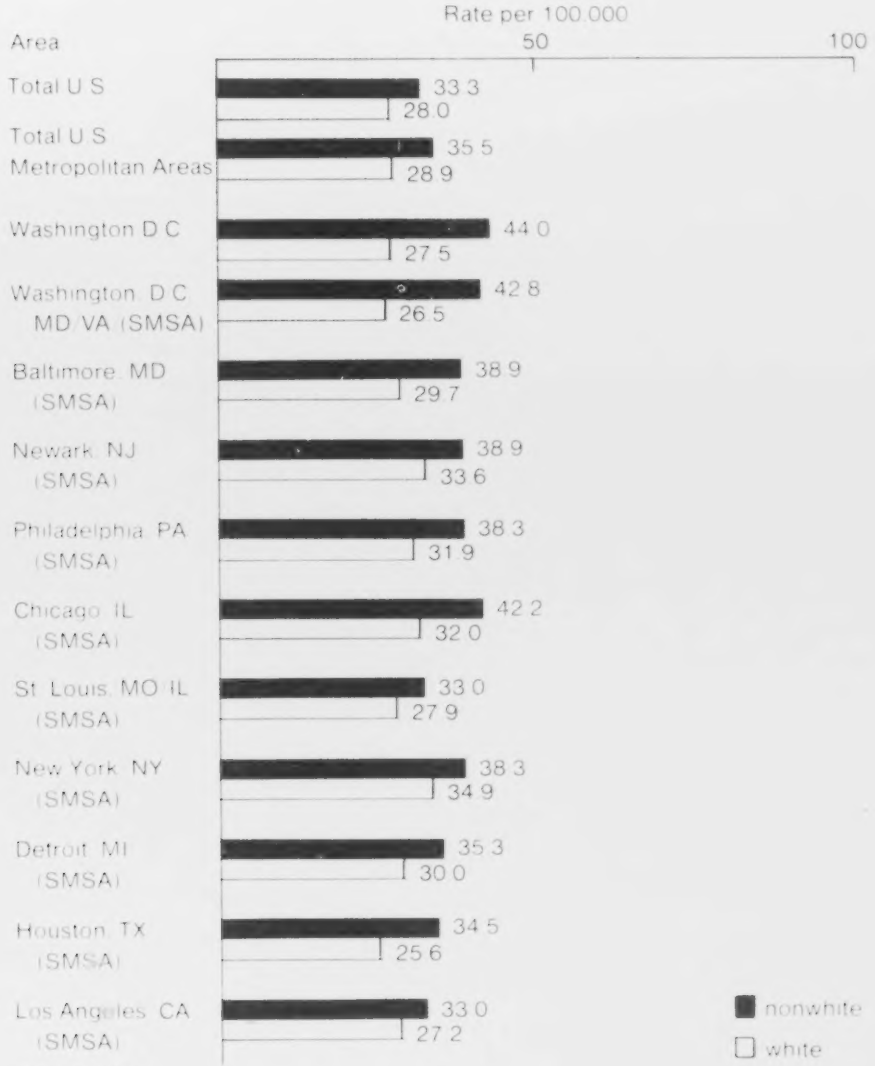
Washington's female population has the largest nonwhite-to-white relative risk (See Appendix—Table 2A). This is also the case for Washington's male population. The relative risks for nonwhite females in the other study areas are close to the national figures for risks.

Washington, D.C.—*District of Columbia Only*

Due to Washington, D.C.'s unusual classification as a city, a county, and a state in the aggregation of mortality data, site specific cancer mortality data were available from NCHS. Comparable data were not available for the other study areas. Because of the unusually high rates in the Washington, D.C. SMSA, a comparison of the District's site specific cancer rates with comparable national rates is presented in Table 3. A comparison of provisional Baltimore City rates and District of Columbia rates is presented at the end of the Findings section.

In Table 3, ratios are presented for a comparison of site-specific District of Columbia rates with national rates. For all of the specific sites, other than female stomach cancer, nonwhites in the District have higher rates and risks than U.S. nonwhites. These higher risks are particularly evident for cancers of the esophagus, colon, rectum, and liver.

Figure 7
Average Annual Mortality Rates for Female Digestive System Cancer by Color and Geographic Area: United States 1969-1971 (age-adjusted to U.S. 1940 population)



Source: 11

Among these high risk sites, esophageal rates are most notable. Among all sex and color groups in the District, the relative risk of dying from esophageal cancer is extremely high. For nonwhite males, not only is the risk high, but esophageal cancer is the most frequent site of digestive system cancer deaths. Factors that have been considered as possible etiologic agents include the use of alcohol and tobacco, consumption of hot foods and liquids, heavy seasoning in food, air pollution, and exposure to asbestos.[2]

Table 3

Comparison of Washington, DC and Total United States Average Annual Digestive System Cancer Mortality Rates per 100,000 Population by Sex, Color, and Site: 1969-1971 (Age-adjusted to the U.S. 1940 population)

Cancer Site	Sex/Color	Washington, D.C.	Total U.S.	Ratio*
Digestive System (ICDA 150-159)	Nonwhite Male	95.6	57.1	1.67
	White Male	46.9	41.9	1.12
	Nonwhite Female	44.0	33.3	1.32
	White Female	27.5	28.0	0.98
Esophagus (ICDA 150)	Nonwhite Male	27.9	10.1	2.76
	White Male	7.7	3.3	2.33
	Nonwhite Female	3.3	2.4	1.38
	White Female	1.9	0.9	2.11
Stomach (ICDA 151)	Nonwhite Male	20.0	15.0	1.33
	White Male	6.9	7.6	0.91
	Nonwhite Female	6.1	6.2	0.98
	White Female	2.4	3.8	0.63
Colon (ICDA 153)	Nonwhite Male	18.6	12.2	1.49
	White Male	14.1	14.0	1.01
	Nonwhite Female	19.5	12.3	1.59
	White Female	14.3	12.3	1.16
Rectum (ICDA 154)	Nonwhite Male	7.3	4.5	1.62
	White Male	5.1	5.0	1.02
	Nonwhite Female	3.7	3.3	1.12
	White Female	2.2	2.9	0.76
Liver (ICDA 155)	Nonwhite Male	6.8	3.0	2.27
	White Male	2.6	1.2	2.17
	Nonwhite Female	0.9	0.8	1.13
	White Female	0.9	0.5	1.80
Gallbladder (ICDA 156)	Nonwhite Male	0.9	0.9	1.00
	White Male	0.6	1.3	0.46
	Nonwhite Female	1.7	1.3	1.31
	White Male	1.0	1.8	0.56
Pancreas (ICDA 157)	Nonwhite Male	11.9	10.2	1.17
	White Male	8.8	8.5	1.04
	Nonwhite Female	6.9	6.2	1.11
	White Female	4.1	5.0	0.82

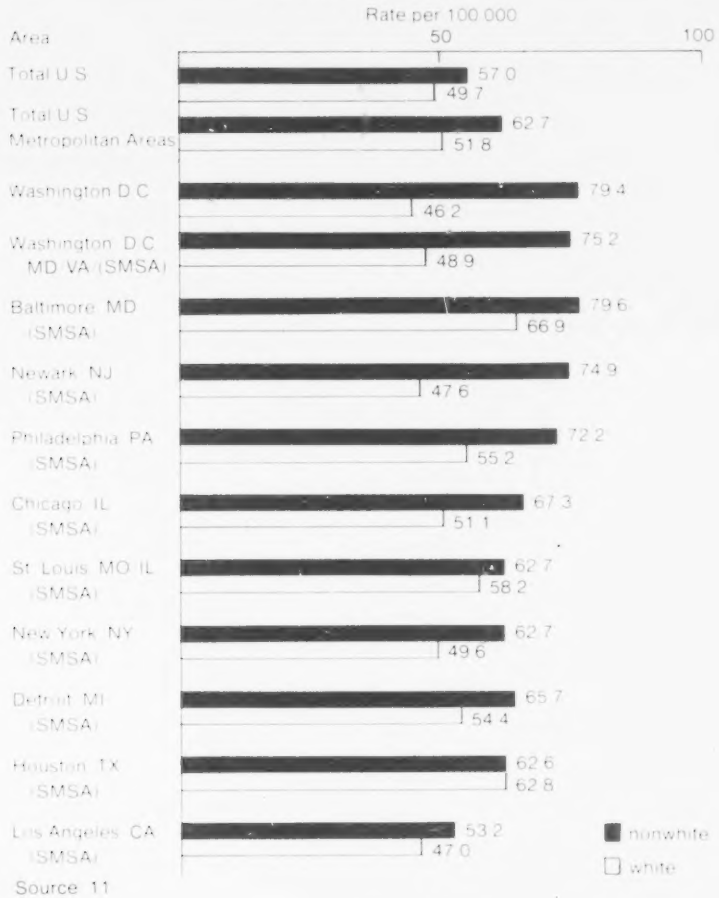
*Ratio of Washington, D.C. to total U.S. age-adjusted cancer mortality rates.

Source: Computed from 11

RESPIRATORY SYSTEM CANCERS

Cancers of the respiratory system account for 31.6 percent of all cancer deaths among men, and 9.4 percent among women.[11] 93.8 percent of all respiratory tract cancer deaths are due to cancers of the lung and bronchus; this figure varies little by sex and color. Once respiratory system cancer is detected, the median survival time is less than six months for both males and females, whites and blacks, and among all age groups.[1] The majority of respiratory sys-

Figure 8
Average Annual Mortality Rates for Male Respiratory System Cancer by Color and Geographic Area, United States 1969-1971 (age-adjusted to U.S. 1940 population)



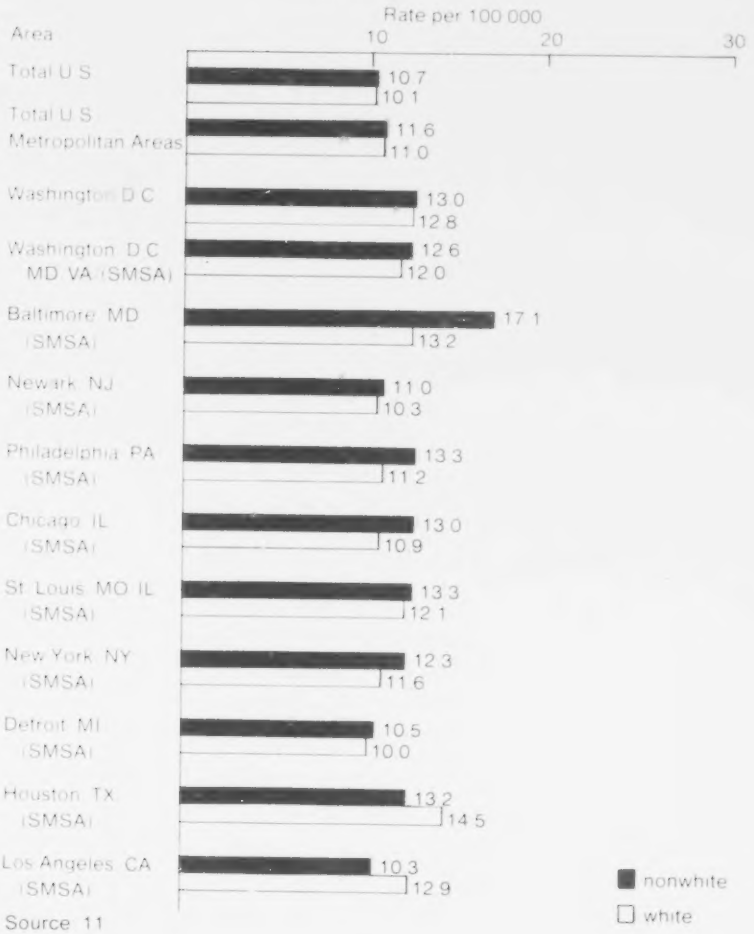
Source: 11

tem cancer deaths are thought to be a result of tobacco smoking. There is evidence that the combined risks of smoking and certain occupational exposures, such as the handling of uranium or asbestos, are together greater than would be expected from separately adding the two exposures (a synergistic effect).[2]

Nonwhite Males

Nonwhite males have the highest respiratory system cancer rates among the four sex/color groups (See Figure 8). Among the study areas, Baltimore has the highest nonwhite male rates, followed closely by Washington, Newark, and Philadelphia. All of these areas are in the northeastern United States and three are industrial in nature. Rates for other areas in this study generally cluster around average U.S. figures.

Figure 9
Average Annual Mortality Rates for Female Respiratory System Cancer by Color and Geographic Area: United States 1969-1971 (age-adjusted to U.S. 1940 population)



Source: 11

Newark, N.J. and Washington, D.C. males have the highest nonwhite-to-white relative risks (See Appendix – Table 3A). Relative risks among other study areas are markedly lower and vary considerably among themselves and from average U.S. risks. Possibly, factors common to Newark and Washington are responsible for the high relative risks found in their nonwhite populations. The highly industrialized environment of Newark does not provide an answer for the drastic racial difference found in mortality, but it may be indicative of a synergistic effect with some other factor. Washington's racial differences are more difficult to explain.

Nonwhite Females

Nationally, nonwhite females have respiratory system cancer mortality rates similar to rates for white females, and much lower than those for nonwhite and white males. (See Figure 9). In all but one study area, nonwhite female respiratory system cancer rates vary little from one another and from national rates. The one exception is found for Baltimore's nonwhite females who have the highest rate noted. The Baltimore population also has the highest respiratory system cancer rates for both white and nonwhite males; for white females it has the second highest rate. Baltimore females have the highest nonwhite-to-white risk ratio among the study areas (See Appendix – Table 3A).

Table 1

Number and Percent Distribution of Population by Color: Ten Metropolitan Areas* with the Largest Number of Blacks, United States: 1970

	TOTAL	WHITE POPULATION		NONWHITE POPULATION		BLACK POPULATION	
AREA	POPULATION	NUMBER	% OF TOTAL	NUMBER	% OF TOTAL	NUMBER	% OF TOTAL
New York, NY	11,571,899	9,489,371	82.0	2,082,528	18.0	1,885,303	16.3
Chicago, IL	6,978,947	5,672,580	81.3	1,306,377	18.7	1,230,919	17.6
Philadelphia, PA	4,817,914	3,944,884	81.9	873,030	18.1	844,300	17.5
Los Angeles, CA	7,032,075	6,006,499	85.5	1,025,576	14.6	762,844	10.8
Detroit, MI	4,199,931	3,419,720	81.4	780,211	18.6	757,083	18.0
Washington, DC	2,861,123	2,124,903	74.3	736,220	25.7	703,745	24.6
Baltimore, MD	2,070,670	1,564,307	75.8	501,363	24.2	490,012	23.7
Houston, TX	1,985,031	1,587,485	80.0	397,346	20.0	382,382	19.3
St. Louis, MO/IL	2,363,017	1,975,145	83.6	387,872	16.4	378,816	16.0
Newark, NJ	1,856,556	1,493,788	80.5	362,768	19.5	348,342	18.8

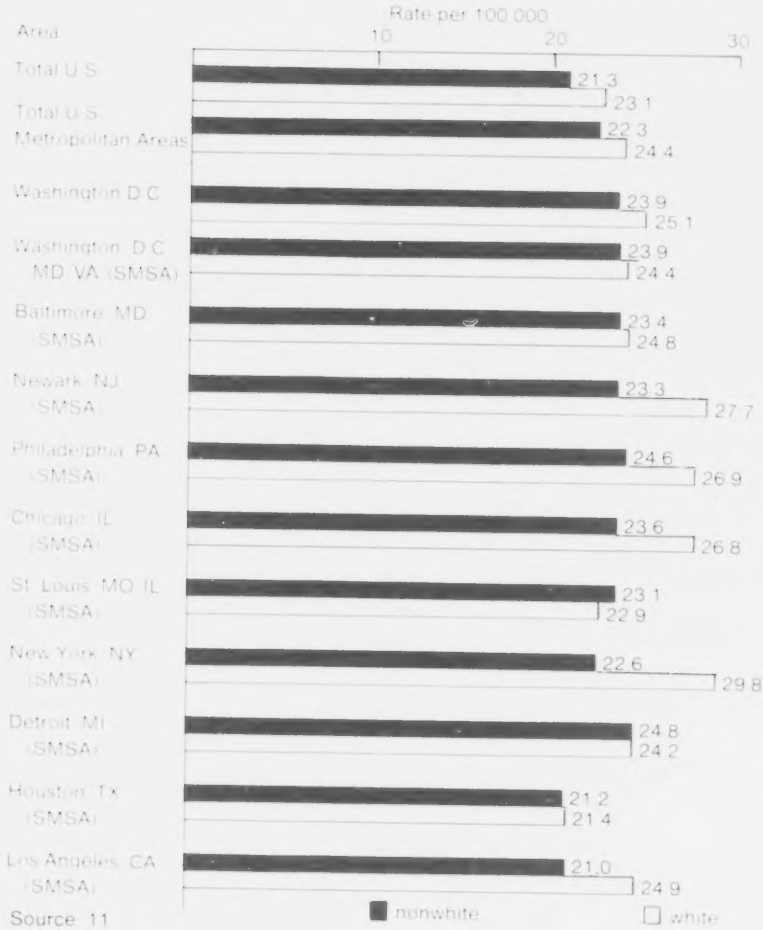
*Standard Metropolitan Statistical Areas

Source: 9

BREAST CANCER

Breast cancer accounts for 20.2 percent of all female cancer deaths and only 0.2% of all male cancer deaths.[11] This report will cover only female breast cancer. Breast cancer accounts for a greater percentage of total cancer deaths among white females than nonwhite females – 20.6 and 17.1, respectively. It

Figure 10
Average Annual Mortality Rates for Female Breast Cancer by Color and Geographic Area: United States 1969-1971 (age-adjusted to U.S. population)



Source: 11

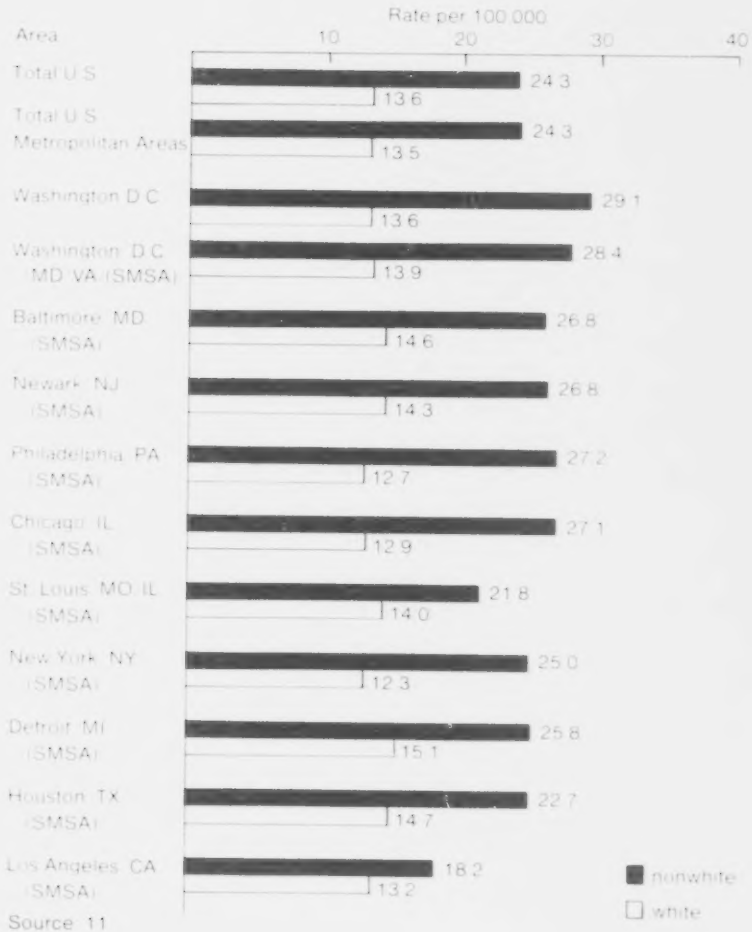
also occurs more frequently among whites than among nonwhites; breast cancer mortality rates have remained almost unchanged during the past four decades. Many factors have been associated with the risk of breast cancer including age at first pregnancy, family history of breast cancer, socioeconomic status, obesity and race.[2]

Mortality rates for the nonwhite females in the study areas show remarkably little variation among themselves and from average U.S. rates. (See Figure II.) In general, breast cancer rates among the study areas are slightly higher than U.S. rates. Causal factors which are associated with breast cancer among non-whites may be consistent between study areas. With the exception of New York and Newark (two geographically close areas) breast cancer rates for white females also show little variation.

GENITAL SYSTEM CANCERS

Cancers of the female genital organs account for 14.3 percent of all white female cancer deaths and 19.9 percent of all nonwhite female cancer deaths.[11] Cancers of the male genital organs account for 9.0 percent of all white male cancer deaths and 12.2 percent of all nonwhite male cancer deaths. Female genital

Figure 11
Average Annual Mortality Rates for Male Genital System Cancer by Color and Geographic Area: United States 1969-1971 (age-adjusted to U.S. 1940 population)



Source: 11

organs include the cervix, corpus uteri, ovary, vulva, and vagina. Male organs include the prostate, testis and penis. Cancer of the prostate accounts for 94.3 percent of all genital cancer deaths among males; this figure varies little by race.[5] Nationally, nonwhite prostatic cancer death rates are nearly twice those for whites. The reported incidence and mortality of prostatic cancer among blacks has risen sharply over the past four decades.[2]

Nonwhite Males

Among the areas presented in Figure 11, Washington, D.C. area nonwhite males have the highest death rate. All but three study areas have rates slightly higher than national averages, and the variation between these rates is small. Los Angeles has unusually low rates, but its nonwhite population has a different black composition than other study areas. Philadelphia, Washington, and Chicago have the highest nonwhite-to-white relative risks (See Appendix – Table 5A). Among other study areas, the nonwhite relative risks are quite varied.

Nonwhite Females

St. Louis and Chicago have the highest nonwhite female genital cancer rates (See Figure 12). Much like genital cancer among nonwhite males, the variation in nonwhite female rates among study areas is small. Nonwhite females in all study areas have considerably higher rates than white females. Baltimore, Washington, and Chicago have the highest nonwhite-to-white relative risks (See Appendix – Table 5A). Seven of the study areas have nonwhite rates higher than average national rates.

Washington, D.C. — *The District of Columbia Only*

In general, mortality rates for genital system cancers in the District of Columbia are not appreciably different from rates for the entire Washington, D.C. SMSA. Site-specific mortality rates for the District of Columbia and for the total United States population are presented in Table 4. Genital system cancer rates are equal to or greater than national rates for all sex/color groups; nonwhites have the highest ratio of rates. When specific sites are examined, the most apparent difference is between District and national nonwhite prostatic cancer rates – 21 percent higher for the District's population. Washington, D.C. females, both nonwhite and white, have high risks of dying from ovarian cancer; differences from national rates among other sites are only slight.

Due to both the magnitude and the risk, prostatic cancer among Washington area nonwhite males should be examined with regard to health planning and causal factors. Frequent sexual activity and high rates of venereal disease are found to be associated with high prostatic cancer rates, but little else is known.

Figure 12
Average Annual Mortality Rates for Female Genital System Cancer by Color and Geographic Area: United States 1969-1971 (age-adjusted to U.S. 1940 population)

Source: 11

Table 4

Comparison of Washington, D.C. and Total United States Average Annual Genital System Cancer Mortality Rates per 100,000 Population by Sex, Color, and Site: 1969-1971 (Age-adjusted to the U.S. 1940 population)

Cancer Site	Sex/Color	Washington D.C.	Total U.S.	Ratio*
Genital System (ICDA 180-187)	Nonwhite Males	29.1	24.3	1.20
	White Males	13.6	13.6	1.00
	Nonwhite Females	28.9	26.0	1.11
	White Females	17.9	16.7	1.07
Cervix Uteri (ICDA 180)	Nonwhite Females	12.3	12.6	0.98
	White Females	3.6	4.8	0.75
Corpus Uteri (ICDA 181, 182)	Nonwhite Females	6.9	6.4	1.08
	White Females	6.9	6.3	1.10
Ovary (ICDA 183)	Nonwhite Females	8.1	6.2	1.31
	White Females	10.2	7.8	1.31
Prostate (ICDA 185)	Nonwhite Males	28.5	23.4	1.22
	White Males	12.7	12.4	1.02

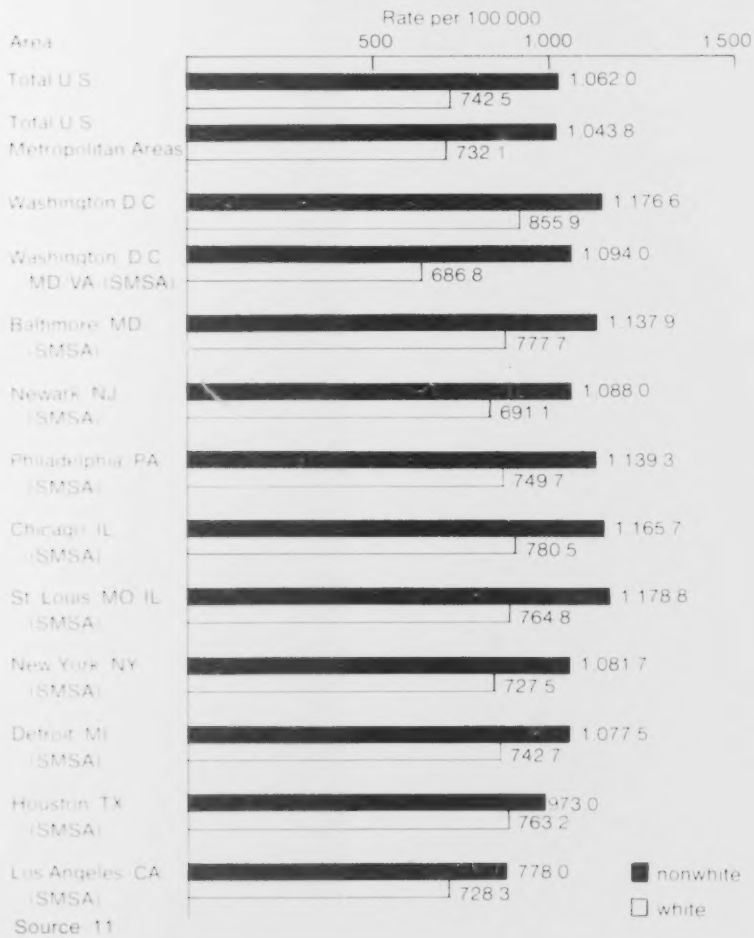
*Ratio of Washington, D.C. to total United States age-adjusted cancer mortality rates.

Source: Computed from 11

MORTALITY FROM CAUSES OTHER THAN CANCER

As with cancer, when other causes of death are examined, nonwhites have much higher age-adjusted rates than whites – 43 percent higher for males and 66 percent higher for females.[11] These figures substantiate the fact that the overall health of U.S. nonwhites is poorer than that of whites. Many factors

Figure 13
Average Annual Mortality Rates for Males – All Causes other than Cancer by Color and Geographic Area: United States 1969-1971 (age-adjusted to U.S. population)

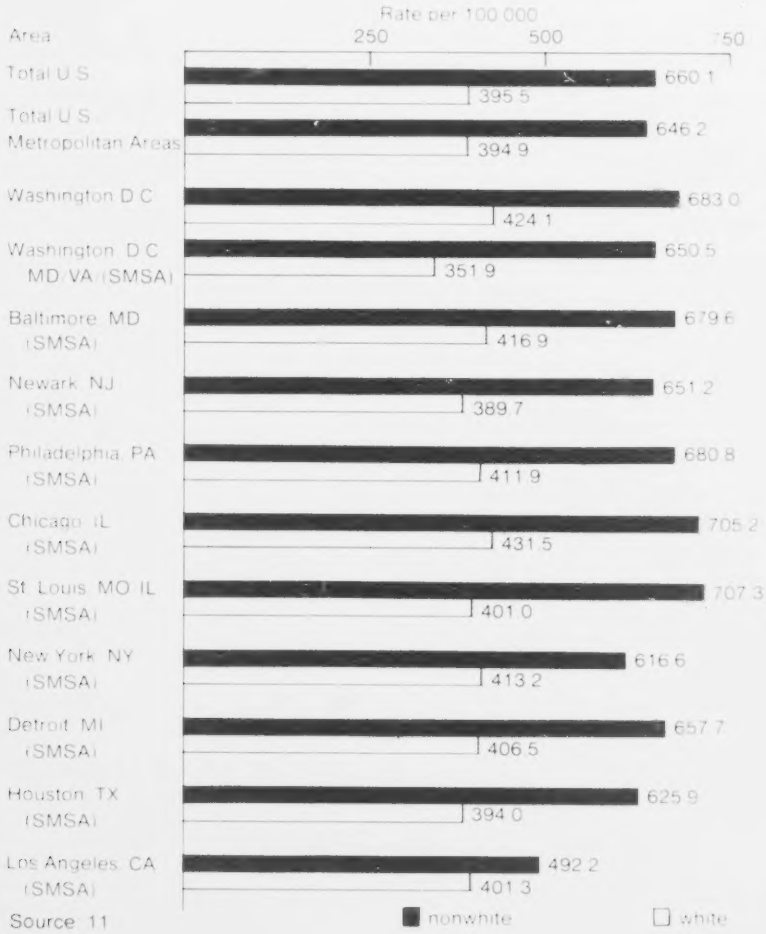


Source: 11

which contribute to the high cancer mortality rates among nonwhites may also contribute to their high overall death rates. Such possible factors include: (1) inadequate health care, (2) insufficient health education and awareness, (3) lifestyles which promote poor health (4) hazardous occupations, and (5) poor diets and living conditions.

Age-adjusted rates for all causes of death other than cancer are presented in Figures 13 and 14. For all sex and color groups, people living in metropolitan

Figure 14
Average Annual Mortality Rates for Females – All Causes other than Cancer by Color and Geographic Area: United States 1969-1971 (age adjusted to U.S. 1940 population)



Source: 11

Table 5

Comparison of Washington, D.C. and Total United States Average Annual Mortality Rates per 100,000 Population by Sex, Color, and Cause: 1969-1971 (Age-adjusted to the U.S. 1940 population)

Cause	Sex/Color	Washington, D.C.	Total U.S.	Ratio*
All Causes	Nonwhite Males	1,441.0	1,249.5	1.15
	White Males	1,018.6	896.4	1.14
	Nonwhite Females	826.2	781.3	1.06
	White Females	540.6	502.6	1.08
Heart Disease (ICDA 390-398, 404, 410-429)	Nonwhite Males	382.2	348.2	1.10
	White Males	373.0	348.7	1.07
	Nonwhite Females	248.3	230.8	1.08
	White Females	155.3	167.0	0.93
All Cancers (ICDA 140-208)	Nonwhite Males	264.4	187.5	1.41
	White Males	162.7	154.5	1.05
	Nonwhite Females	143.2	121.2	1.18
	White Females	116.5	107.1	1.09
Cardiovascular Disease (ICDA 430-438)	Nonwhite Males	81.3	115.6	0.70
	White Males	54.9	69.9	0.79
	Nonwhite Females	75.3	102.0	0.74
	White Females	46.6	56.6	0.82
Cirrhosis of the Liver (ICDA 571)	Nonwhite Males	81.3	31.2	2.61
	White Males	54.4	18.6	2.90
	Nonwhite Females	38.5	17.2	2.23
	White Females	26.0	8.7	2.99
Influenza and Pneumonia (ICDA 470-474, 480, 486)	Nonwhite Males	76.1	49.7	1.53
	White Males	36.6	26.0	1.41
	Nonwhite Females	32.2	27.5	1.17
	White Females	21.5	15.2	1.41

*Ratio of Washington, D.C. to total U.S. age-adusted cancer mortality rates

Source: Computed from 11

areas have slightly less risks of dying from diseases other than cancer than the average U.S. resident. This is possibly due either to their greater risk of dying from cancer, thus eliminating the possibility of dying from some other disease, or their better access to medical care.

Areas in the study population having the highest cancer rates do not necessarily have the highest rates for other causes of death. Washington area nonwhite males and females rank towards the middle for these other diseases—fifth and seventh highest, respectively; for cancer, they have the first and second highest rates. Both males and females in the white population of the Washington area not only have the lowest rates among the study areas, but have rates well below

national averages. Thus, the racial differences found for cancer mortality rates in Washington are also present for non-cancer deaths. Baltimore area nonwhite males and females both rank fourth for these other diseases, for cancer, they have the second and first highest rates, respectively.

Among other study areas, mortality rates from diseases other than cancer reflect the cancer relationships previously presented. St. Louis, Chicago, and Philadelphia had the three highest rates presented for mortality from these other diseases – first, second, and third, respectively, for both male and female nonwhites. These areas also had among the highest cancer mortality rates. New York, Detroit, Houston, and Los Angeles all have among the lowest mortality rates for both cancer and these other diseases.

The Washington and Baltimore areas appear to have much higher cancer rates than might be expected when diseases other than cancer are examined. Possibly, causal factors are present for cancer mortality which do not greatly affect mortality from other diseases.

Washington, D.C. – *District of Columbia Only*

Site specific mortality rates for the District of Columbia were available from NCHS and are presented in Table 5. This table presents ratios to contrast District risks with total United States risks. When all causes of death are combined, District risks are consistently higher than national risks for all sex and color groups. Risks for District nonwhites are similar to those for whites.

For diseases other than cancer, high relative risks are noted for cirrhosis of the liver and for influenza and pneumonia. Cirrhosis of the liver is of particular interest. All sex/color groups in the District have unusually high rates and risks. Similar risks are also found for esophageal cancer among all residents of the District (See Table 3). One common factor has been strongly linked to both of these diseases – the consumption of alcohol.

DISTRICT OF COLUMBIA AND BALTIMORE CITY CANCER RATES

Site specific cancer mortality rates for the District of Columbia and Baltimore City are presented in Table 6. Rates for the District of Columbia were obtained from the NCHS and rates for Baltimore were provided by the Baltimore City Health Department. These rates pertain to residents within the city limits of the respective SMSA's. Rates from Baltimore are provisional and are thought to be conservative. Rates for all specific cancer sites were not available from Baltimore, but most major sites are contrasted with District rates. Both of these cities have an extremely high percentage of blacks in their population – the District has 73.5 percent and Baltimore has 46.4 percent.[9]

Nonwhite Males

District nonwhite males have higher mortality rates than nonwhite males in Baltimore for all cancer sites except lung and bronchus. Both District and Baltimore nonwhite males have rates notably higher than total U.S. rates for the esophagus, lung and bronchus, and colon. Both white and nonwhite males in Baltimore have unusually high lung and bronchus mortality rates; rates for the prostate and stomach are also high. There are no obvious environmental factors in either city which can account for the apparent magnitude of the cancer problem.

Nonwhite Females

Among nonwhite females, District residents have slightly higher overall rates. When specific sites are examined, greater variations between mortality rates appear. District females have higher rates for the colon and breast. Baltimore has higher rates for the rectum, lung, and bronchus. Rates for other sites are similar for the residents of both these cities. In general, site specific cancer mortality rates for both cities are higher than national rates.

Table 6

Average Annual Cancer Mortality Rates by Sex, Color, Site, and City: District of Columbia and Baltimore City, 1969-1971
(Age-Adjusted to the U.S. 1940 population)

Site	City	Nonwhite Male	Nonwhite Female	White Male	White Female
All Cancers (ICDA 140-209)	D.C.	264.4	143.2	162.7	116.5
	Baltimore	240.6	138.2	208.8	116.3
Esophagus (ICDA 150)	D.C.	27.9	3.3	7.7	1.9
	Baltimore	16.5	3.5	4.6	1.0
Stomach (ICDA 151)	D.C.	20.0	6.1	6.9	2.4
	Baltimore	16.5	6.1	8.7	3.8
Colon (ICDA 153)	D.C.	18.6	19.5	14.1	14.3
	Baltimore	17.2	14.4	18.6	12.7
Rectum (ICDA 154)	D.C.	7.3	3.7	5.1	2.2
	Baltimore	4.0	5.4	6.1	4.2
Lung and Bronchus (ICDA 162)	D.C.	71.2	11.9	40.0	11.6
	Baltimore	74.9	16.1	74.4	13.5
Breast (ICDA 174)	D.C.	–	23.9	–	25.1
	Baltimore	–	20.3	–	24.0
Cervix Uteri (ICDA 180-183)	D.C.	–	19.2	–	7.5
	Baltimore	–	19.3	–	8.9
Prostate (ICDA 185)	D.C.	28.5	–	12.7	–
	Baltimore	26.1	–	14.3	–

Source: 11, 12

CONCLUSION

Until the early 1950's, reported cancer mortality rates for U.S. whites were higher than those for nonwhites. Over the past six decades, mortality rates for nonwhite males have risen even more rapidly than those for white males. During this same time period, rates for nonwhite females have remained constant, while rates for white females have declined. In 1975, nonwhite mortality rates were considerably higher than those of white's – 27 percent higher for nonwhite males and 11 percent higher for nonwhite females. Although the recent rise in male cancer mortality rates may partly be due to more accurate reporting for causes of death, experts feel it also represents a true increase in the number of cancer deaths. It also may be related to increased exposures to industrial and environmental pollutants.

The ten SMSA's examined in this study have the largest combined black populations in the U.S.; together, they comprise over one-third of the total U.S. black population. Among these SMSA's, nonwhites in the Washington, D.C. SMSA have the highest age-adjusted cancer mortality rate, and the Baltimore SMSA nonwhites have the second highest rate. In general, nonwhite rates for the areas studied are higher than national rates.

When cancer mortality for the three major male organ systems was examined, nonwhite rates for Washington and Baltimore again stood out. Washington nonwhite males have the highest rates for both digestive and genital system cancers; they have the second highest rate for respiratory system cancer. Baltimore nonwhite males have the highest rate for respiratory system cancer and among the highest rates for digestive and genital system cancers. Mortality rates for the nonwhite males in most of the other study areas are higher than national averages for all of the organ systems examined.

Systematic mortality rates for nonwhite females varied less among the study areas than rates for nonwhite males. For digestive system cancer, Washington has the highest nonwhite female rate; for respiratory cancers, Baltimore females have the highest rate. In general, nonwhite females in Washington, Baltimore, Newark, Chicago, and St. Louis have comparably high mortality rates for breast and genital system cancers.

Site specific cancer mortality rates were examined for both District of Columbia and Baltimore City nonwhites. Although these two cities have high cancer rates for nearly all sites, rates for certain sites are unusually high. In Washington, these sites include esophagus, stomach, colon, rectum, liver, ovary,

prostate, lung and bronchus. Sites with unusually high rates for Baltimore include esophagus, colon, prostate, lung and bronchus.

There appears to be a greater variation between areas in rates for nonwhite males than for nonwhite females. Differences between areas in nonwhite male cancer rates may be due to differences in occupational or environmental exposures. The Washington and Baltimore areas have the highest nonwhite male rates and would provide interesting settings for etiologic studies. Baltimore also has extremely high rates for its white population while Washington, D.C. whites have relatively low rates. This adds interest to finding factors responsible for the extremely high nonwhite rates.

Trends show that cancer mortality rates for U.S. nonwhites are continuing to rise. Of particular importance are the extremely high rates occurring among nonwhite males. Health program planners and physicians in areas with large numbers of nonwhites should pay particular attention to all aspects of cancer control (i.e., prevention, screening and detection, treatment, and rehabilitation). Epidemiologists should work to identify factors contributing to the high nonwhite male mortality rates. Causal factors contributing to high nonwhite male rates may also be linked to the occurrence of cancer in the other sex/color groups.

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Appendix

Table 4A

Female Breast Cancer Mortality Rates per 100,000 Population by Sex, Color and Area: 1969-1971 (Age-Adjusted to the 1940 U.S. Population)

AREA	FEMALES		
	NONWHITE	WHITE	RELATIVE[1] RISK
Total U.S.	21.3	23.1	0.92
Total U.S. Metropolitan Areas[2]	22.3	24.4	0.91
Washington, D.C.[3]	23.9	25.1	0.95
Washington, D.C. (SMSA)	23.9	24.4	0.98
Baltimore, MD (SMSA)	23.4	24.8	0.94
Newark, NJ (SMSA)	23.3	27.7	0.84
Philadelphia, PA (SMSA)	24.6	26.9	0.91
Chicago, IL (SMSA)	23.6	26.8	0.88
St. Louis, MO/IL (SMSA)	23.1	22.9	1.01
New York, NY (SMSA)	22.6	29.8	0.76
Detroit, MI (SMSA)	24.8	24.2	1.02
Houston, TX (SMSA)	21.2	21.4	0.99
Los Angeles, CA (SMSA)	21.0	24.9	0.84

[1]The risk of nonwhites as compared to the risk of whites. Computed by forming a ratio of nonwhite to white age-adjusted rates.

[2]229 Standard Metropolitan Statistical Areas (SMSA's).

[3]For the city of Washington, D.C. only.

Source: Computed from 11

Table 1A

Cancer Mortality Rates per 100,000 Population by Sex, Color, and Area: 1969-1971 (Age-adjusted to the 1940 U.S. population)

AREA	MALES			FEMALES		
	NONWHITE	WHITE	RELATIVE[1] RISK	NONWHITE	WHITE	RELATIVE RISK
Total U.S.	187.5	154.4	1.21	121.2	107.1	1.13
Total U.S. Metropolitan Areas[2]	200.8	160.3	1.25	125.4	110.5	1.13
Washington, D.C.[3]	264.4	162.7	1.63	143.2	116.5	1.23
Washington, D.C. (SMSA)	250.2	156.8	1.60	140.6	108.6	1.29
Baltimore, MD (SMSA)	241.5	185.5	1.30	141.7	114.0	1.24
Newark, NJ (SMSA)	227.9	164.3	1.39	133.0	119.6	1.11
Philadelphia, PA (SMSA)	221.5	169.0	1.31	137.7	117.1	1.18
Chicago, IL (SMSA)	214.6	165.4	1.30	138.5	117.4	1.18
St. Louis, MO/IL (SMSA)	212.4	167.5	1.27	130.2	109.5	1.19
New York, NY (SMSA)	210.9	168.6	1.25	126.3	123.3	1.02
Detroit, MI (SMSA)	204.6	168.7	1.21	126.3	110.2	1.15
Houston, TX (SMSA)	191.1	167.5	1.14	119.9	104.8	1.14
Los Angeles, CA (SMSA)	176.9	151.6	1.17	112.0	111.6	1.00

[1]The risk of nonwhites as compared to the risk of whites. Computed by forming a ratio of nonwhite to white age-adjusted rates.

[2]229 Standard Metropolitan Statistical Areas (SMSA's)

[3]For the city of Washington, D.C. only.

Source: Computed from 11

Table 2A

Digestive System Cancer Mortality Rates per 100,000 Population by Sex, Color and Area: 1969-1971

(Age-Adjusted to the 1940 population)

AREA	MALES			FEMALES		
	NONWHITE	WHITE	RELATIVE[1] RISK	NONWHITE	WHITE	RELATIVE RISK
Total U.S.	57.1	41.9	1.36	33.3	28.0	1.19
Total U.S. Metropolitan Areas[2]	62.1	44.5	1.40	35.5	28.9	1.23
Washington, D.C.[3]	95.6	46.9	2.04	44.0	27.5	1.60
Washington, DC (SMSA)	88.6	40.7	2.18	42.8	26.5	1.62
Baltimore, MD (SMSA)	70.2	48.9	1.44	38.9	29.7	1.31
Newark, NJ (SMSA)	71.5	51.7	1.38	38.9	33.6	1.16
Philadephia, PA (SMSA)	65.2	49.2	1.33	38.3	31.9	1.20
Chicago, IL (SMSA)	72.0	50.2	1.43	42.2	32.0	1.32
St. Louis, MO/IL (SMSA)	68.9	43.7	1.58	33.0	27.9	1.18
New York, NY (SMSA)	70.6	53.7	1.31	38.3	34.9	1.09
Detroit, MI (SMSA)	62.9	46.1	1.36	35.3	30.0	1.18
Houston, TX (SMSA)	60.8	39.9	1.52	34.5	25.6	1.35
Los Angeles, CA (SMSA)	58.0	40.5	1.43	33.0	27.2	1.21

[1]The risk of nonwhites as compared to the risk of whites. Computed by forming a ratio of nonwhite to white age-adjusted rates.

[2]229 Standard Metropolitan Statistical Areas (SMSA's)

[3]For the city of Washington, D.C. only.

Source: Computed from 11

Table 3A

Respiratory System Cancer Mortality Rates per 100,000 Population by Sex, Color and Area: 1969-1971
(Age-Adjusted to the 1940 U.S. population)

AREA	MALES			FEMALES		
	NONWHITE	WHITE	RELATIVE[1] RISK	NONWHITE	WHITE	RELATIVE RISK
Total U.S.	57.0	49.7	1.15	10.7	10.1	1.06
Total U.S. Metropolitan Areas[2]	62.7	51.8	1.21	11.6	11.0	1.05
Washington, D.C.[3]	79.4	46.2	1.72	13.0	12.8	1.02
Washington, DC (SMSA)	75.2	48.9	1.54	12.6	12.0	1.05
Baltimore, MD (SMSA)	79.6	66.9	1.20	17.1	13.2	1.30
Newark, NJ (SMSA)	74.9	47.6	1.57	11.0	10.3	1.07
Philadephia, PA (SMSA)	72.2	55.2	1.31	13.3	11.2	1.19
Chicago, IL (SMSA)	67.3	51.1	1.32	13.0	10.9	1.19
St. Louis, MO/IL (SMSA)	62.7	58.2	1.07	13.3	12.1	1.10
New York, NY (SMSA)	62.7	49.6	1.26	12.3	11.6	1.06
Detroit, MI (SMSA)	65.7	54.4	1.21	10.5	10.0	1.05
Houston, TX (SMSA)	62.6	62.8	0.97	13.2	14.5	0.91
Los Angeles, CA (SMSA)	53.2	47.0	1.13	10.3	12.9	0.80

[1]The risk of nonwhites as compared to the risk of whites. Computed by forming a ratio of nonwhite to white age-adjusted rates.
[2]229 Standard Metropolitan Statistical Areas (SMSA's)
[3]For the city of Washington, D.C. only.

Source: Computed from 11

Table 5A

Genital System Cancer Mortality Rates per 100,000 Population by Sex, Color and Area: 1969-1971

(Age Adjusted to the 1940 U.S. population)

AREA	MALES			FEMALES		
	NONWHITE	WHITE	RELATIVE RISK[1]	NONWHITE	WHITE	RELATIVE RISK
Total U.S.	24.3	13.6	1.79	26.0	16.7	1.56
Total U.S. Metropolitan Areas[2]	24.3	13.5	1.80	25.4	16.6	1.53
Washington, D.C.[3]	29.1	13.6	2.14	28.9	17.9	1.61
Washington, D.C. (SMSA)	28.4	13.9	2.04	29.0	16.1	1.80
Baltimore, MD (SMSA)	26.8	14.6	1.84	27.2	14.9	1.83
Newark, NJ (SMSA)	26.8	14.3	1.87	28.5	17.9	1.59
Philadelphia, PA (SMSA)	27.2	12.7	2.14	25.9	16.1	1.61
Chicago, IL (SMSA)	27.1	12.9	2.10	31.2	18.4	1.70
St. Louis, MO/IL (SMSA)	21.8	14.0	1.56	32.7	16.9	1.78
New York, NY (SMSA)	25.0	12.3	2.03	24.9	16.7	1.49
Detroit, MI (SMSA)	25.8	15.1	1.71	22.5	15.7	1.43
Houston, TX (SMSA)	22.7	14.7	1.54	25.4	14.4	1.76
Los Angeles, CA (SMSA)	18.2	13.2	1.38	20.4	17.2	1.19

[1]The risk of nonwhites as compared to the risk of whites. Computed by forming a ratio of nonwhite to white age-adjusted rates.

[2]229 Standard Metropolitan Statistical Areas (SMSA's)

[3]For the city of Washington, D.C. only.

Source: Computed from 11

Table 7A

Cancer Mortality Rates by Sex, Color and Year: United States

(Age-adjusted to the U.S. 1940 population)

Year	White Male	White Female	Nonwhite Male	Nonwhite Female
1975	157.2	106.9	199.7	118.9
1970	154.2	107.6	185.3	117.6
1965	147.8	107.4	167.3	120.9
1960	141.6	109.5	154.8	125.0
1955	137.4	114.3	138.7	124.7
1950	130.9	119.4	125.8	131.0
1945	128.5	126.0	96.1	119.0
1940	122.4	127.9	86.4	121.1
1935	115.6	132.1	70.5	119.0
1930	118.8	129.4	59.3	112.0
1925	104.6	130.1	56.2	119.6
1920	94.3	124.8	43.7	109.9
1915	86.4	121.0	45.9	116.9

Source: 6, 7, 11

Table 6A

Mortality Rates for All Causes Other Than Cancer per 100,000 Population by Sex, Color and Area: 1969-1971
(Age-Adjusted to the 1940 U.S. population)

AREA	MALES			FEMALES		
	NONWHITE	WHITE	RELATIVE[1] RISK	NONWHITE	WHITE	RELATIVE RISK
Total U.S.	1,062.0	742.5	1.43	660.1	395.5	1.67
Total U.S. Metropolitan Areas[2]	1,043.8	732.1	1.43	646.2	394.9	1.64
Washington, D.C.[3]	1,176.6	855.9	1.37	683.0	424.1	1.61
Washington, D.C. (SMSA)	1,094.0	686.8	1.59	650.5	351.9	1.85
Baltimore, MD (SMSA)	1,137.9	777.7	1.46	679.6	416.9	1.63
Newark, NJ (SMSA)	1,088.0	691.1	1.57	651.2	389.7	1.67
Philadelphia, PA (SMSA)	1,139.3	749.7	1.52	680.8	411.9	1.65
Chicago, IL (SMSA)	1,165.7	780.5	1.49	705.2	431.5	1.63
St. Louis, MO-IL (SMSA)	1,178.8	764.8	1.51	707.3	401.0	1.76
New York, NY (SMSA)	1,081.7	727.5	1.49	616.6	413.2	1.49
Detroit, MI (SMSA)	1,077.5	742.7	1.45	657.7	406.5	1.62
Houston, TX (SMSA)	973.0	763.2	1.27	625.9	394.0	1.59
Los Angeles, CA (SMSA)	778.0	728.3	1.06	492.2	401.3	1.23

[1]The risk of nonwhites as compared to the risk of whites. Computed by forming a ratio of nonwhite to white age-adjusted rates.
[2]229 Standard Metropolitan Statistical Areas (SMSA's)
[3]For the city of Washington, D.C. only.

Source: Computed from 11